



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/405,848

09/27/1999

TOSHIO NORITA

48864-021

9972

20277 7590 11/15/2007
MCDERMOTT WILL & EMERY LLP
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096

EXAMINER

AGGARWAL, YOGESH K

ART UNIT

PAPER NUMBER

2622

MAIL DATE

DELIVERY MODE

11/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/405,848	NORITA ET AL.	
	Examiner	Art Unit	
	Yogesh K. Aggarwal	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-15,24-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15 is/are allowed.
- 6) ☒ Claim(s) 11-14 and 24-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/09/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/05/2007 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 11-14 and 24-27 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keller et al. (US Patent # 6,503,195), Suzuki et al. (US Patent # 4,621,191) and in further view of Svetkoff et al. (US Patent # 5,812,269).

[Claim 11]

Keller et al. teaches a three-dimensional input apparatus comprising a projector (figure 1, 100) for irradiating a detection light beam on an object (col. 5 lines 6-13); an image sensing device (camera 102) with an image sensing surface including a plurality of two-dimensionally arranged light-receiving elements for receiving the detection light beam reflected on said object (col. 6

Art Unit: 2622

lines 25-33, col. 8 lines 43-46); and a controller (image processor/ controller 104) for controlling the electric charge accumulation time of said plurality of light-receiving elements such that the light beam is scanned for each sampling period (each sampling period is read as steps ST1 to ST5) and discriminating whether at least one of said plurality of types of output signals is saturated for each one of the two-dimensionally arranged light-receiving elements or for each part of the two-dimensionally arranged light-receiving elements, and selecting non-saturated signals among said plurality of types of output signals for each one of the plurality of two-dimensionally arranged light-receiving elements or for each part of the plurality of two-dimensionally arranged light-receiving elements, based on the result of the discrimination (col. 12 lines 19-43, figure 4).

Keller fails to teach a plurality of types of outputs with different electric charge accumulation times are produced by each of said light-receiving elements in one light-receiving area for each sampling period and a scanning mechanism for scanning said object by deflecting the direction of irradiation of said detection light beam.

However Suzuki teaches a controller (drive circuit 7) which controls the electric charge accumulation time of the photoelectric element arrays S_a and S_b (plurality of light receiving elements) such that three different types of outputs with different electric charge accumulation times can be generated (T1, T2 and T3, wherein T1, T2, T3 is read as a sampling period, The claim does not define a sampling period, col. 4 lines 11-22, figure 6) in order to increase the dynamic range.

[Suzuki reference teaches the characteristic lines 12a, 12b, 12c correspond to photoelectric element arrays S_a and S_b (col. 4 lines 11-15). Suzuki further teaches and as shown

Art Unit: 2622

in FIG. 4, the photoelectric element array Sa is composed of small photoelectric elements m.sub.a through m.sub.n arranged in a row, and similarly the photoelectric element array Sb contains small photoelectric elements m.sub.a through m.sub.n arranged in a row (col. 3 lines 40-44). Therefore photoelectric element arrays Sa and Sb (plurality of light-receiving elements) generate a plurality of types of outputs with different electric charge accumulation times produced by each of said light-receiving elements (characteristic lines 12a, 12b, 12c correspond to different charge accumulation time T1, T2 and T3). If the whole array generates different accumulation time, then each photoelectric will generate a plurality of outputs too].

Therefore taking the combined teachings of Keller and Suzuki, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have used different electric charge accumulation times are produced by each of said light-receiving elements in one light-receiving area for each sampling period in order to in order to increase the dynamic range.

Keller in view of Suzuki fail to teach a scanning mechanism for scanning said object by deflecting the direction of irradiation of said detection light beam

However Svetkoff teaches a system includes a laser transmitter 100 (figure 6) which generally includes laser beam generator and electronic modulation mechanism for laser intensity control, beam deflector for scanning the laser beam or projecting a line of laser light, and optical focusing means to create a plurality of scanned points or a projected line of light across an object 102 in order to produce a high speed flying spot with a telocentric optical system (col. 9 lines 40-45).

Art Unit: 2622

Therefore taking the combined teachings of Keller, Suzuki and Svetkoff, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have used a scanning mechanism for scanning said object by deflecting the direction of irradiation of said detection light beam in order to produce a high speed flying spot with a telocentric optical system.

[Claim 24]

This is a method claim corresponding to apparatus claim 11. Therefore it has been analyzed and rejected based upon the apparatus claim 11.

5. Claims 12 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keller et al. (US Patent # 6,503,195), Suzuki et al. (US Patent # 4,621,191), in view of Svetkoff (US Patent # 5,812,269) as applied to claims 11 and 24 above in further view of Komobuchi et al. (US Patent # 6,248,133).

[Claim 12]

Keller, Suzuki in view of Svetkoff fail to teach “wherein said controller controls said image sensing device so as to output a signal corresponding to the accumulated electric charge upon lapse of a first accumulation time and continue to accumulate electric charge while maintaining said accumulated electric charge until a second charge accumulation time”. However Komobuchi et al. teaches that the employment of the element structure and driving method of the present proposal enables the reading of accumulated charges in the first exposure period and that of accumulated charges in the second exposure period to be simultaneously conducted (col. 21 lines 30-35). It would be obvious that since the two charges are read at the same time the accumulated electric charge is accumulated upon lapse of a first accumulation time and continue to be

Art Unit: 2622

accumulated electric charge while maintaining said accumulated electric charge until a second charge accumulation time. Therefore taking the combined teachings of Keller, Suzuki, Svetkoff and Komobuchi, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have a controller that controls said image sensing device so as to output a signal corresponding to the accumulated electric charge upon lapse of a first accumulation time and continue to accumulate electric charge while maintaining said accumulated electric charge until a second charge accumulation time in order to decrease the overall load on the controller since the reading takes place only once thereby increasing the efficiency of the process.

[Claim 25]

This is a method claim corresponding to apparatus claim 12. Therefore it has been analyzed and rejected based upon the apparatus claim 12.

6. Claims 13 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keller et al. (US Patent # 6,503,195), Suzuki et al. (US Patent # 4,621,191), Svetkoff (US Patent # 5,812,269), Komobuchi et al. (US Patent # 6,248,133) as applied to claims 12 and 25 above and in further view of Kusaka et al. (US Patent # 5,589,909).

[Claim 13]

Keller et al., Suzuki et al., Svetkoff and Komobuchi fail to teach, “wherein said controller selects among said non-saturated signals one having a long electric charge accumulation time”.

However Kusaka et al. teaches that if the intensity of the target object is low (read as non-saturated signals) then signals with long charge accumulation are selected (col. 10 lines 57-67).

Therefore taking the combined teachings of Keller et al., Suzuki et al., Svetkoff, Komobuchi and

Art Unit: 2622

Kusaka, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have a controller that selects among said non-saturated signals one having a long electric charge accumulation time. The benefit of doing so would be so that conditions related to the intensity of light from the target object to be photographed can also be detected as taught in Kusaka (col. 10 lines 60-62).

[Claim 27]

This is a method claim corresponding to apparatus claim 13. Therefore it has been analyzed and rejected based upon the apparatus claim 13.

7. Claims 14 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keller et al. (US Patent # 6,503,195), Suzuki et al. (US Patent # 4,621,191) in view of Svetkoff (US Patent # 5,812,269) as applied to claims 11 and 24 above and in further view of Kusaka et al. (US Patent # 5,589,909).

[Claim 14]

Keller et al., Suzuki et al. in view of Svetkoff fail to teach, “wherein said controller selects among said non-saturated signals one having a long electric charge accumulation time”.

However Kusaka et al. teaches that if the intensity of the target object is low (read as non-saturated signals) then signals with long charge accumulation are selected (col. 10 lines 57-67).

Therefore taking the combined teachings of Keller et al., Suzuki, Svetkoff and Kusaka, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have a controller that selects among said non-saturated signals one having a long electric charge accumulation time. The benefit of doing so would be so that conditions related to the intensity of

Art Unit: 2622

light from the target object to be photographed can also be detected as taught in Kusaka (col. 10 lines 60-62).

[Claim 26]

This is a method claim corresponding to apparatus claim 14. Therefore it has been analyzed and rejected based upon the apparatus claim 11.

Allowable Subject Matter

1. Claim 15 is allowed.

2. The following is a statement of reasons for the indication of allowable subject matter:

The prior art fails to suggest or teach a controller for controlling said image sensing device so as to output a first signal due to a first electric charge accumulation time and a second signal due to a second electric charge accumulation time equal to a predetermined multiple of said first signal during the electric charge accumulation of said image sensing device; and a selecting circuit for selecting said second signal in the case where said second signal has not been saturated and using selecting a signal of a size equal to said predetermined multiple of said first signal in the case where said second signal has been saturated; and a processor for performing calculations using the selected signal, said selecting circuit including: a first switch, a second switch, a memory, a comparator and an integrator wherein said first switch receives the first and second signals outputs the first signal to the memory and outputs the second signal to the second switch and to the comparator, the integrator receives the first signal from the memory and outputs the signal of a size equal to said predetermined multiple of said first signal to the second switch, and the comparator compares the second signal to a reference saturation level and outputs a control signal to the second switch to output the second signal where the second signal has not been

Art Unit: 2622

saturated and to output the signal of a size equal to said predetermined multiple where the second signal has been saturated.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K. Aggarwal whose telephone number is (571) 272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on (571)-272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

YKA

November 12, 2007